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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/883,391	06/19/2001	Takayuki Kifuku	Q64978	1332

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SUGHRUE, MION, ZINN, MACPEAK & SEAS
2100 Pennsylvania Avenue, N.W.
Washington, DC 20037

EXAMINER

SMITH, TYRONE W

ART UNIT	PAPER NUMBER
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2837

DATE MAILED: 12/11/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/883,391

Applicant(s)

KIFUKU ET AL.

Examiner

Tyrone W Smith

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 29 October 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-17 rejected under 35 U.S.C. 102(b) as being anticipated by Mori (JP 06-225573). Mori discloses a vector controller for an Induction Motor, which includes a PWM inverter/driver (Figure 3 #2) for the motor; a micro-controller which limits a motor current in accordance with an integrated value of a predetermined function of a phase current. The micro-controller for Mori's invention, as illustrated in Figure 9, analog-digital converters (7), current control section (6), coordinate transformation section (9 and 10), transducer (8) and an integrator (5). Also, refer to Figure 6 where the current control section includes limiter circuits (6e and 6f), PI controller (6a and 6c) and interference term compensation means (6c and 6d). The limiters limit the voltages to limit values of a ration of a voltage in the case of rating at the normal time, and when the voltages exceed the limit values; the previous voltages are used as the limited values and a coordinate conversion output by a primary voltage and a previous phase voltage.

Regarding Claims 7-11 and 15-16 refer to Mori section [0011] through section [0036].

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3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 18-20 rejected under 35 U.S.C. 103(a) as being unpatentable over Mori (JP 06-225573) in view of Okano (57774477). Mori discloses a vector controller for an Induction Motor as described in the previous rejection. Mori does not disclose/state a controller/microcontroller conducting a calculation in accordance with an absolute value, detected value and a target value of the phase current. Okano discloses a control apparatus for a motor (abstract, Figures 1-9, column 6 lines 35-67, column 7 lines 1-67, column 8 lines 1-14). It would have been obvious to one of ordinary skill in the art at the time of invention to combine Mori's invention of a vector controller for an Induction Motor with Okano's control apparatus for a motor. The advantage of combining the two would assure a vector control state even if the DC voltage of a PWM inverter were lowered in order to vector control a motor by the inverter having a current control system.

Examiner's Response

5. Applicant's arguments filed October 29, 2002 have been fully considered but they are not persuasive.

Applicant argue that the reference, Mori [573] does not teach a micro-controller that limits a motor current in accordance with an integrated value of a predetermined function of a

phase current of the motor. Examiner believes that Mori teaches, in light of the claims, the claimed invention.

Based on the claims as presented, multi-phase motor, a drive circuit, and a microcontroller. The microcontroller limits a motor current in accordance with the integrated value of a predetermined function of a phase current of the motor. Mori discloses a multi-phase motor; drive circuit, and a micro-controller. The micro-controller for Mori's invention, as illustrated in Figure 9, analog-digital converters, current control section, coordinate transformation section, transducer and an integrator. The Proportional integration control means, within the current control section, proportionally integrates current detected values of the exciting axis current command, received from the coordinate transformation section. The limiters, within the current control section, limits the voltage commands to prevent overheating of the motor. Refer to Figure 1.

The present invention purpose is to control and perform overheat protection of the motor. Mori limits voltage command whereas the present invention states that it limits motor current. Both are used and entered into a PWM inverter to control the motor. Therefore, both are similar in scope and ideology. Examiner suggests that the Applicant amend the claims in order to expedite prosecution.

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tyrone W Smith whose telephone number is 703-306-5987. The examiner can normally be reached on weekdays from 8:30am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Nappi, can be reached on (703) 308-3370. The fax phone number for the organization where this application or proceeding is assigned is 703-308-3431.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1782.

Tyrone Smith

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ROBERT E. NAPPI
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